Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1(original): A method for preparing multicrystalline substrates as handling wafers for subsequent bonding to device layer materials, the method comprising the steps of:

providing an initial multi crystalline substrate;

polishing the multi crystalline substrate to reduce surface roughness to about 5 nm;

forming a filler layer overlying the face of the substrate to a predetermined thickness, the filler layer comprising a surface that is substantially free from indications of the multi crystalline arrangement; and

further polishing the surface of the filler layer to form a substantially smooth upper surface on the substrate, wherein the substantially smooth upper surface is characterized by a surface roughness of twenty Angstroms or less.

Claim 2 (original): The method of claim 1, wherein the initial substrate is selected from a polycrystalline silicon wafer, a glass substrate, a ceramic substrate, an organic film, a metal substrate, and an amorphous wafer.

Claim 3(original): The method of claim 1, wherein the initial substrate has a typical crystalline dimension of about 0.5 to 10 millimeters in size.

Claim 4(original): The method of claim 1, wherein the filler layer is selected from a CVD oxide, and a polycrystalline silicon.

Claim 5(original): The method of claim 1, wherein the filler layer is removed to a thickness of one half or more of the predetermined thickness.

Claim 6 (original): The method of claim 1, wherein the filler layer is a polycrystalline silicon, the polycrystalline being formed using a low pressure chemical deposition technique.

Claim 7 (currently amended): The method of claim 1, wherein the filler layer is chosen from the group consisting of an insulating layer ~~and/or~~ and a composite layer.

Claim 8 (original): The method of claim 1, wherein the surface roughness is five Angstroms or less.

Claim 9 (original): The method of claim 1, wherein the filler layer is made by a chemical deposition process or a sputtering process.

Claim 10 (original): The method of claim 1, wherein the substrate is a ground substrate or unpolished substrate.

Claim 11 (currently amended): The method of claim 1, wherein the ~~polishing process~~ method for preparing multicrystalline substrates is a chemical mechanical polishing technique comprising:

applying a mechanical fine-grinding step;

applying a rough polishing step using a weakly alkaline slurry;

changing the composition of the slurry by feeding a neutral polishing slurry to the polishing pad and gradually reducing supply of rough polishing slurry; and wherein surface roughness after polishing is 0.5 nm or less.

Claim 12 (currently amended): The method of claim 1, wherein the ~~polishing process~~ method for preparing multicrystalline substrates is a chemical mechanical polishing comprising:

applying a mechanical fine-grinding step;

applying a rough polishing step using a weakly alkaline slurry;

adding TMAH to the slurry to adjust the alkalinity of the slurry for increased removal rates while maintaining material removal rates relatively constant between various grain regions of the substrate; and

effecting a controlled transition to a second slurry composition to obtain microscopically smooth surfaces;

wherein surface roughness after polishing is 0.5 nm or less.

Claim 13 (currently amended): The method of claim 1, wherein the ~~polishing process~~ method for preparing multicrystalline substrates is a double-sided chemical mechanical polishing technique comprising:

applying a mechanical fine-grinding step;

applying a rough polishing step using a weakly alkaline slurry;

changing the composition of the slurry by feeding a neutral polishing slurry to the polishing pad and gradually reducing supply of rough polishing slurry; and

wherein surface roughness after polishing is twenty Angstroms or less.

Claim 14 (currently amended): The method of claim 1, wherein the ~~polishing process~~ method for preparing multicrystalline substrates is a double-sided chemical mechanical polishing technique in which polishing is done on a double-sided polishing machine to polish front and back sides of the substrate simultaneously, comprising:

applying a mechanical fine-grinding step;

A1

applying a rough polishing step using a weakly alkaline slurry;

adding TMAH to the slurry to adjust the alkalinity of the slurry for increased removal rates while maintaining material removal rates relatively constant between various grain regions of the substrate;

effecting a controlled transition to a second slurry composition to obtain microscopically smooth surfaces;

wherein the front and back side each achieve a flatness of 0.5 micron or less; and the front side achieves a roughness of 0.5 nm or less.

Claim 15-17(cancelled)

Claim 16 (original): Micro-Electro-Mechanical Structures (MEMS) made from bonded assemblies prepared using the method of claim 1.

Claim 17 (original): Micro-Opto-Electro-Mechanical Structures (MOEMS) made from bonded assemblies prepared using the method of claim 1.

Claim 18 (original): A method for polishing substrates, the method comprising steps of:

applying a rough polishing step using a weakly alkaline slurry;

changing the composition of the slurry by feeding a neutral polishing slurry to the polishing pad and gradually reducing supply of rough polishing slurry; and wherein surface roughness after polishing is 0.5 nm or less.

Claim 19 (original): The method of claim 18, wherein the polishing is performed on a double-sided polishing machine to polish front and back sides of said substrate simultaneously.

Claim 20-23(cancelled)